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Oceans and the law of the sea

Letter dated 24 March 2014 from the Permanent Representative of India to the United Nations addressed to the Secretary-General

Pursuant to General Assembly resolution 65/37 B, a workshop was held in Chennai, India, from 27 to 29 January 2014, under the auspices of the United Nations, in support of the first phase of the first assessment cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects. I have the honour to transmit herewith the report of the workshop (see annex).

I kindly request that the present letter and its annex be circulated as a document of the General Assembly, under agenda item 76.

(*Signed*) Asoke K. **Mukerji**

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Annex to the letter dated 24 March 2014 from the Permanent Representative of India to the United Nations addressed to the Secretary-General

Report of the eighth workshop held under the auspices of the United Nations in support of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

Chennai, India, 27-29 January 2014

I. Background

1. The Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects at its fourth meeting recommended that a workshop be organized for the northern Indian Ocean, the Arabian Sea, the Red Sea, the Gulf of Aden and the Regional Organization for the Protection of the Marine Environment (ROPME)/Regional Commission for Fisheries (RECOFI) areas, under the auspices of the United Nations. The Earth System Science Organization (ESSO)-Ministry of Earth Sciences, the nodal Ministry of the Government of India, as a State party to the 1982 United Nations Convention on the Law of the Sea, hosted this workshop to facilitate the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects. The Ministry designated the ESSO-National Institute of Ocean Technology (NIOT), Chennai, India, as the venue, and the Director, ESSO-NIOT, as the nodal person, to conduct the workshop.

2. The workshop was funded and conducted by the Ministry of Earth Sciences of India, the host country, in close coordination with the Division of Ocean Affairs and the Law of the Sea, Office of Legal Affairs of the Secretariat of the United Nations. The workshop was conducted in accordance with the modified agenda approved on day 1 (see annex I).[a] It was attended by 38 delegates, including 6 delegates who participated through a video bridge (for the list of participants, see annex II).

II. Proceedings of the workshop

3. Dr. Shailesh Nayak, Secretary, ESSO, Ministry of Earth Sciences, inaugurated the workshop. In his opening address, he mentioned that regular monitoring of the seas is crucial, considering the rise in anthropogenic activities. The Director, ESSO-NIOT, welcomed all the participants to the eighth workshop, held in support of the first cycle of the Regular Process. The representative of the Division of Ocean Affairs and the Law of the Sea and Secretary of the Ad Hoc Working Group of the Whole of the Regular Process, made opening remarks on behalf of the United Nations Legal Counsel. She said that the workshop would provide an opportunity to identify the most significant issues for the northern Indian Ocean, the Arabian Sea,

[a] All the annexes to the report are available from the Regular Process website (www.un.org/Depts/los/global_reporting/global_reporting.htm).

the Red Sea and the Gulf of Aden, and the ROPME/RECOFI areas. It would pave the best way to mobilize information on assessments and initiate capacity-building for integrated assessments.

4. The host country nominated the Director, Council of Scientific and Industrial Research (CSIR)-National Institute of Oceanography (NIO) and former member of the Group of Experts for Assessment of Assessments, as the Chair of the Workshop in accordance with the guidelines of the workshops. He noted limited participation by the Member States of the region, which needs serious attention. He also commented on the lack of formal assessments from the region, in spite of many scientific studies and publications. He stated that a large part of the northern Indian Ocean falling within the exclusive economic zones remains unexplored. He suggested close networking and collaboration between the countries of the region, to address basin-wide linkages between coastal processes, and other scientific issues faced by the region. After formal introduction of the participants, the Chair outlined the objectives of the workshop. The purpose of the workshop, as stipulated by the guidelines, is to review and evaluate all assessments considered by the participants to be relevant to the sea area under consideration and, on the basis of these evaluations, to compile an inventory of assessments, related to environmental and socioeconomic issues, likely to be useful for the Regular Process.

5. The representative of the Division of Ocean Affairs and the Law of the Sea presented an overview of the evolution and the structure of the Regular Process. This was followed by a question and answer session. To the queries on the limited availability of data from regions with limited access, such as coastal waters of the least developed nations, she replied that these could be identified as gaps in the assessments. She also added that a summary of the workshop would go to Member States and that further assessments might be carried out in the future.

6. The Director, ESSO-NIOT, briefed the workshop on the role of various Indian organizations in the region, such as the Indian Council of Agricultural Research (ICAR)-the Central Marine Fisheries Research Institute (CMFRI), the Indian Institute of Science (IISc), the CSIR-NIO, ESSO-the Integrated Coastal and Marine Area Management Project Directorate (ICMAM-PD), ESSO-the Centre for Marine Living Resources and Ecology (CMLRE), ESSO-the Indian National Centre for Ocean Information Services (INCOIS), ESSO-NIOT, and others, in the assessment of the state of the marine environment. This was followed by a general discussion. To the queries on inclusion of management aspects of the coastal zone in the workshop, the representative of the Division of Ocean Affairs and the Law of the Sea replied that policy and management aspects are not covered in the assessment. The Division of Ocean Affairs and the Law of the Sea representative emphasized that policy decisions should not be part of the first global integrated marine assessment.

7. The Joint Coordinator of the Group of Experts, joined through a video bridge from the United Kingdom and made a general presentation on the aims, scope and outcome of the workshop (see annex III). He discussed the building blocks for achieving integrated assessment. He adopted a cross-cutting and illustrative approach to describe the frameworks for discussion, such as, ocean processes and circulation, developmental activities, integrated assessment of biodiversity, among others. This was followed by a question and answer session, wherein he emphasized the importance of the impact of microbes on ecology and the relevance of income

and injury to fish-workers on socioeconomics. He further listed 15 important human activities requiring immediate focus (annex IV).

8. The representative of the Division of Ocean Affairs and the Law of the Sea explained the template recommended for preparing the inventory of assessments. Thereafter, the chair organized the participants into three break-out groups: Group 1: Biophysics and biogeochemistry; Group 2: Biodiversity and food security; Group 3: Socioeconomics and capacity-building. The various chapters of the template were assigned to various groups.

9. The representative of the South Asia Co-operative Environment Programme (SACEP), Sri Lanka, joined the discussion through a video bridge and sent two reports for consideration while making the inventory. The session on day 1 ended with a discussion in break-out groups.

10. The session on day 2 started with presentations by the coordinators of the five themes (biophysics and biogeochemistry, food security, socioeconomic aspects, marine biodiversity and capacity-building (annexes V, VI, VII, VIII and IX, respectively)).

Theme 1: Biophysics and biogeochemistry

11. The theme coordinator of biophysics and biogeochemistry presented an overview of the assessments carried out on ocean physics, biogeochemistry, sea-level variations, eutrophication, harmful algal blooms and marine pollution (see annex V). He said that 36 assessments were available from the Global and Regional Assessments of the Marine Environment Database (GRAMED) for the south-eastern Asian Seas, of which 27 assessments contained information pertaining to the above subject areas. He stated that the water quality of the Indian coast had constantly been monitored at 88 stations until 2010 and has been monitored seasonally at 20 stations since 2011 under the Coastal Ocean Monitoring and Prediction System (COMAPS) programme of ESSO-Ministry of Earth Sciences. These observations indicated elevated nutrient concentrations at a few sites and a relatively high pathogenic bacterial population at many others. The gaps in knowledge were identified for topics such as ocean acidification, carbon sequestration, air-sea fluxes, and others.

Theme 2: Food security

12. There was a presentation on the major assessments made and the spatio-temporal range (see annex VI). The gaps and capacity-building needs pertaining to food security aspects were listed. The major aspects, such as the structural shift in the capital investment in fishing units from traditional to mechanized units, extension of oil sardine fishery to the north-east and north-west coast of India, migration of mackerel to deeper waters and shift in the threadfin bream breeding season were emphasized. The assessment of deep sea fish/shrimp catch, ecologically sensitive habitat, coral reef diversity, myctophid fish abundance, natural seed abundance, vulnerability of coastal states, impacts on fish phenology, impact of climate change on fish distribution, marine fish stock, fisheries ecosystem, environment and habitat, recruitment strength, marine mammals, seabirds, impacts of bivalve farming, estimates of the carbon footprint of fishing industries and the impact of ocean acidification on meroplankton were identified as the major gap areas. In the ensuing discussions, the Chair of the workshop pointed out that an

integrated assessment of the impact of hypoxia on fisheries along the west coast of India is also required.

Theme 3: Socioeconomic aspects

13. The theme coordinator of socioeconomic aspects presented an overview of the assessments made on education, level of participation in fisheries, types of subsidiary occupation, religion, membership in cooperatives, assets owned and other socioeconomic aspects of the fishermen community (see annex VII). He stated that a survey at the national level on these aspects is conducted every five years. Assessments were also made of the extent of indebtedness among marine fishermen in mechanized, motorized and traditional fisheries sectors; the impact of microfinance institutions on coastal indebtedness; the impact of a ban on trawling on marine fisheries during the monsoon; the impact of remote sensing on fisheries technology, society and government; impacts of coastal aquaculture and unsustainable development practices on the coastal ecosystem; scaling up of coastal aquaculture, seawater desalination technologies; marine protected areas and loss of livelihoods; and indigenous technical knowledge in the marine fisheries sector. He recommended capacity-building for diversification in traditional fishing practices in the northern Indian Ocean region. The Chair of the workshop remarked that better cooperation is required between natural and social scientists. An expert from CSIR-NIO stated that reports on coastal development and livelihood are available with the International Collective in Support of Fish Workers.

Theme 4: Marine biodiversity

14. The theme coordinator of marine biodiversity stated that the northern Indian Ocean region is expected to have rich biological diversity, but the Ocean Biogeographic Information System database has only 34,989 records of species from the Indian Ocean, including plantae (1,690 species), animalia (30,894 species), archaea (4 species), bacteria (864 species), chromista (773 species), fungi (75 species) and protozoa (689 species) (see annex VIII). He reported that there are no systematic assessments on a regional scale, resulting in considerable data and information gaps, in spite of a large number of theses and publications. He also noted that there were few coastal and marine biodiversity records from areas beyond national jurisdiction and that minor phyla, such as nemertina, gnathostomulida, rotifera, priapulida, nematomorpha, entoprocta and pycnogonidia are not represented so far in the Indian coastal and marine biodiversity records, perhaps because of a lack of expertise. He recommended consolidation of all available information and synthesis of a comprehensive report on coastal and marine biodiversity of the northern Indian Ocean, regular revalidation of reports (once every five years), regional networking of the Indian Ocean Rim countries to generate coastal and marine biodiversity information on areas beyond national jurisdiction, the deep seafloor and on marine microbes and a consortium of Indian Ocean Rim countries to promote capacity-building and ensure regular assessments of coastal and marine biodiversity.

15. While commenting about mangrove diversity, the theme coordinator mentioned substantial growth in mangrove cover in Goa from 0 to 22 sq. km. To this, the workshop Chair remarked that this information is not factual, since the mangrove cover in Goa was never zero. It was clarified that the views reported are consistent with the reports of the Ministry of Environment and Forests of the

Government of India, and that the earlier reports of the Ministry of Environment and Forests had not included the pockets of mangroves found in Kerala, Goa, and elsewhere. A visiting scientist, from ESSO-National Centre of Antarctic and Ocean Research (NCAOR) supported his view and added that available estimates of species diversity greatly varied. The Chair cited this as an example showing that available information on marine habitats suffers from considerable uncertainties. He also pointed out that a huge data gap exists on assessment of corals, especially soft corals.

Theme 5: Capacity-building

16. The theme coordinator of capacity-building, at the outset, remarked that it is necessary to identify the States that may be lacking the capacity to conduct their own environmental and socioeconomic assessments of the marine environment (see annex IX). He suggested that the capacity-building activities need to concentrate on the following issues:

(a) Methodologies to obtain the information from various sources on a regular basis;

(b) Standardization of the information content for assessments at various levels;

(c) Developing common methodologies to carry out the assessment;

(d) Developing methodologies for scaling up national, subregional, regional and global assessments;

(e) Developing reporting forms to assist the integration process, with the aim of securing coherence, consistency and comparability as far as possible.

17. The immediate action plan recommended includes identification of the needs for capacity-building (including the acquisition of the necessary technology) for marine monitoring and assessment (including integrated assessments), and development of a short-term capacity-building plan to mobilize the information and knowledge that is known to exist but has not yet been systematically organized in a way that would allow its use for the Regular Process. The theme coordinator further stated that in India, 10 universities are currently offering a post-graduate degree programme, a PhD programme in oceanography/marine sciences. Further, he added that an International Training Centre for Operational Oceanography has been set up at the Indian National Centre for Ocean Information Services, Hyderabad. He also mentioned the various training programmes such as the integrated coastal zone management, applications of remote sensing and geographic information system (GIS) in coastal areas, satellite oceanography, sediment transport in near-shore areas, coastal vulnerability, ecotoxicology, shoreline management, marine pollution, coastal ecosystem modelling, oil-spill modelling and application of remote sensing in fisheries management, which are being conducted by the Indian National Centre for Ocean Information Services at Hyderabad and the Integrated Coastal and Marine Area Management Project Directorate at Chennai. The training provided by the Central Marine Fisheries Research Institute in Marine Fishery Catch Assessment, census of marine fishers, crafts and gears, marine fish stock assessments, fisheries ecosystem assessments, environment and habitat assessments, marine biodiversity, fisheries management policies and socioeconomic assessments, which he also mentioned in this regard. He emphasized that opportunities and facilities for capacity-building at various levels exist in India. However, for the World Ocean

Assessment, it may be necessary to identify the gap areas, and make efforts in capacity-building for those areas. India can help other States in capacity-building at various levels.

Discussion and recommendations

18. The Senior Scientific Consultant from the National Centre for Sustainable Coastal Management suggested that training programmes should be aimed at identifying and filling gaps such as microbial assessment, seagrass mapping, and others. He suggested that satellite-based techniques can be used to identify mangroves, seagrasses, etc. He further stated that the National Centre is currently engaged in assessments through the programme on the ecosystem health report card.

19. The Scientist-F from the Ministry of Earth Sciences, who participated through a video bridge, proposed the development of a template/matrix for circulation to neighbouring countries in order to enhance cooperation among Member States of the region. The Chair of the workshop supported this view and proposed the formation of a core group for capacity-building, with the Director, ESSO-INCOIS, as the contact person, to develop a questionnaire, with inputs from convenors of all working groups. He further requested that a list of potential focal points for all countries in the region be prepared, since effective communication among these countries is extremely important. The Programme Officer, ESSO-INCOIS, agreed to be the nodal point for this operation. The Director, ESSO-INCOIS, stated that based on the response obtained in the questionnaire, training programmes can be organized on a regional basis.

20. The representative from Greenpeace India suggested including assessments on open ocean and activities related to shipping.

21. The Senior Scientific Consultant of the National Centre for Sustainable Coastal Management suggested that South Asia Co-operative Environment Programme funding be made available for a technical assessment programme for the Indian Ocean. The Professor from the Indian Institute of Science added that training can be imparted to students through the Intergovernmental Oceanographic Commission/Scientific Committee for Oceanic Research programmes.

22. The representative from the Ministry of External Affairs, Qatar, stated that the Regional Organization for the Protection of the Marine Environment and the Regional Commission for Fisheries are interested in continuous monitoring of the environment using satellite technology. He agreed to identify the data gaps in the region. The representative from MRAG Ltd, United Kingdom (British Indian Ocean Territory) remarked that many oceanographic programmes from the region have not been covered. He called for international level capacity-building.

23. The Scientific Secretary, ESSO-Ministry of Earth Sciences and Adviser, ESSO-Ministry of Earth Sciences emphasized the importance of capacity-building in the region and said that cooperation among various countries in the region is very important for the success of the workshop. He also said that procedure, data collection, formatting and preparation of the report should be standardized for all the countries.

24. The Principal Scientist of the Centre for Marine Fisheries Institute suggested that training of data collectors is very important for uniform data collection.

25. The Chair of the workshop agreed with the comments of the participants and emphasized that improving communication among the countries of the region is the most important first step. He identified the need for greater involvement of regional organizations, undertaking joint research programmes and securing funds for capacity-building activities. He requested that the Director of ESSO-INCOIS publicize the training opportunities through the website. He suggested the end of the year 2014 as the deadline for generating data based on these exercises.

26. One member of the Group of Experts joined from Toronto through a video bridge and discussed issues related to capacity-building. He agreed to send reports of previous workshops pertaining to capacity-building. Another member of the Group of Experts also joined from the Philippines through a video bridge. She expressed her happiness over the vast information presented on marine biodiversity and said that it would be very helpful to the Group of Experts in drafting the chapters of the World Ocean Assessment. She suggested including information on marine protected areas and other important ecosystems such as the Pulicat Lake.

27. The three break-out groups, i.e., Group 1, biophysics and biogeochemistry; Group 2, biodiversity and food security; and Group 3, socioeconomics and capacity-building listed the assessments carried out in the specific areas against respective chapters in the template. After perusal of the template, the Chair of the workshop remarked that additional information needed to be added.

Conclusions

28. The participants agreed on the following action points:

(a) Recommendations of the workshop to be followed up proactively. Improve communication among various States in the region, also involving regional organizations;

(b) Interact with individuals from Member States through organization/ questionnaire;

(c) Promote the establishment of a coordination mechanism for the conduct of assessments in areas beyond national jurisdiction with the participation of the Indian Ocean Rim countries;

(d) The template with inventory of assessments to be sent to all participants and Member States of the region for updating;

(e) Data provided under various groups must be authenticated, especially, water quality data of the Coastal Ocean Monitoring and Protection System programme should be subjected to quality check;

(f) Summary of the report containing results and conclusion in accordance with the Guidelines (for workshops) to be submitted by the Ministry of Earth Sciences to the Division of Ocean Affairs and the Law of the Sea.

The Director, ESSO-NIOT and the Chair of the workshop thanked all the delegates, including the representative of the Division of Ocean Affairs and the Law of the Sea, for their active participation and declared the workshop closed.